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Case report

Enterolith obstruction of the small bowel

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Intestinal obstruction caused by an enterolith formed in a small bowel diverticulum is rare. In most cases the enterolith arises from a jejunal diverticulum in an elderly patient. When enterolith obstruction is diagnosed, the entire small bowel and gallbladder should be examined to determine the source. We present three cases and discuss the management options.

CASE 1. A 37-year-old female presented with a four hour history of abdominal pain, nausea and vomiting. There was no past history of surgery. Abdominal examination revealed slight distension, generalised tenderness and diminished bowel sounds. Hernial orifices were normal. Radiography showed multiple dilated loops of small bowel. There was a polymorphonuclear leucocytosis of $15 \cdot 0 \times 10^9/1$. At emergency laparotomy an inflamed Meckel's diverticulum was found, distal to which was an enterolith obstructing the terminal ileum. The remaining small bowel and gallbladder were normal. The diverticulum was excised and the enterolith milked back and removed via the enterotomy. Postoperative recovery was uneventful.

CASE 2. A 70-year-old female presented with a four week history of crampy central abdominal pain, followed by nausea and vomiting. Bowel habit was regular. Appendicectomy and hysterectomy had been performed in 1939 and 1961 respectively. Abdominal examination revealed marked distension and increased bowel sounds. Hernial orifices were normal. Abdominal radiography showed dilated small bowel and a large laminated opacity in the pelvis (Fig 1). There was no air in the biliary tree. Initial conservative management failed, and at laparotomy a hard enterolith obstructing the terminal ileum was removed via an enterotomy. The source of the enterolith was found to be a large jejunal diverticulum which was invaginated into the lumen. Postoperative recovery was unremarkable.

CASE 3. A 90-year-old man presented with a ten day history of crampy abdominal pain, followed seven days later by distension and vomiting. Four years previously, sigmoid colectomy had been performed for diverticular disease, and

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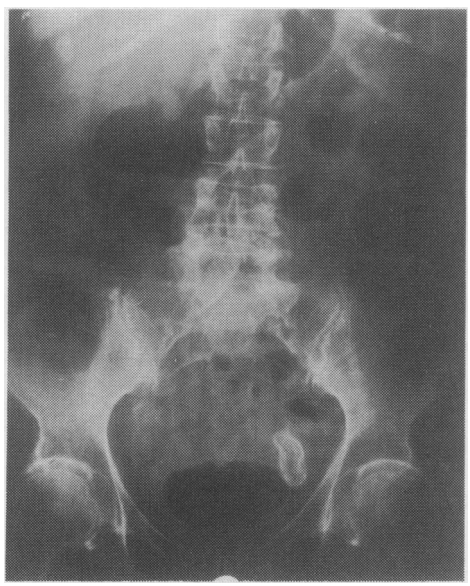
jejunal diverticulosis was noted at that time. On examination the abdomen was distended and tender to the right of the midline. Bowel sounds were increased and hernial orifices normal. Radiography revealed dilated loops of small bowel but no abnormal opacities. Initially, symptoms and signs resolved with conservative management, but ten days following admission, distension and vomiting recurred. A small bowel series showed several large duodenal and jejunal diverticula and dilated proximal small bowel (Fig 2), but the nature of the obstruction was still uncertain. At laparotomy, a 3 cm diameter enterolith was found obstructing the distal jejunum. This was milked proximally and removed along with a 12 cm segment of jejunum containing multiple diverticula. Although initial recovery was satisfactory, he gradually deteriorated and died four weeks later.



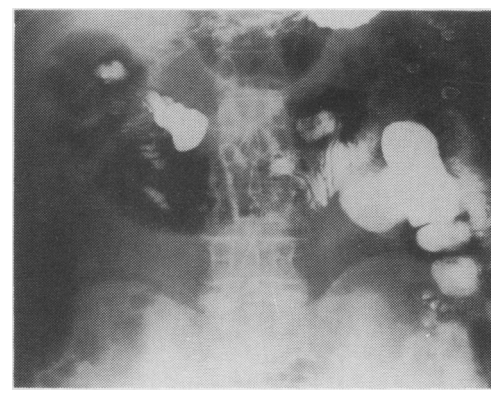


Fig 1 (opposite).
Laminated opacity in the pelvis with associated small bowel obstruction.

Fig 2 (above).
Small bowel series showing multiple duodenal and proximal jejunal diverticula.

DISCUSSION

Intestinal obstruction due to enterolith formation in a small bowel diverticulum is uncommon and has been the subject of occasional case reports.[1-3] This series of cases is presented to highlight this unusual cause of obstruction and to discuss the management options.

Unlike Meckel's diverticulum, jejunal diverticula are uncommon, acquired and usually occur in the elderly. They are false diverticula in that they lack a muscle coat. Both may be complicated by haemorrhage, inflammation and perforation. In addition, bacterial overgrowth in large jejunal diverticula is a recognised cause of malabsorption.[4] Chemical analysis of small bowel enteroliths has revealed mainly unconjugated bile acids.[5] It has been postulated that stasis, due to small bowel dyskinesia, results in bacterial overgrowth causing deconjugation of bile salts which precipitate to form a nucleus for enterolith formation. In the absence of small bowel diverticulosis enteroliths may form around a nidus such as fruit skins and stones, or rarely around ingested foreign bodies.[6]

In our first two cases removal of the enterolith was successfully combined with either invagination of a single jejunal diverticulum or wedge excision of a Meckel's diverticulum. In the third case a segment of jejunum containing multiple diverticula was resected and the enterolith removed. This elderly patient died postoperatively. Since jejunal diverticula usually occur in the elderly it has been suggested that in order to minimise postoperative complications the obstructing enterolith should be broken up manually and milked into the caecum,[7] thereby obviating the need for enterotomy. Recurrent enterolith obstruction has not been reported, and since jejunal diverticula are usually asymptomatic it is recommended that in the absence of diverticulitis or necrosis the diverticulum or diverticular segment should not be resected in frail elderly patients.

When enterolith obstruction is diagnosed radiologically or at laparotomy, the entire small intestine and gallbladder should be examined to determine the source.

REFERENCES

1. Herbetko J, Brunton FJ. Enteroliths of small bowel diverticula. *Clin Radiol* 1991; **43**: 311-3.
2. Beal SL, Walton CB, Bodai BI. Enterolith ileus resulting from small bowel diverticulosis. *Am J Gastroenterol* 1987; **82**: 162-4.
3. King PM, Bird DR, Eremin O. Enterolith obstruction of the small bowel. *J Roy Coll Surg Edinb* 1985; **30**: 269-70.
4. Drude RB, Finkelman D, Davis WD, Ferrante WA. Malabsorption in jejunal diverticulosis treated with resection of the diverticula. *Dig Dis Sci* 1980; **25**: 802-6.
5. Phillips J. Two cases of intestinal obstruction due to an enterolith: with reports of the chemical analysis. *Br J Surg* 1921; **8**: 378-9.
6. Gardiner KR, Maxwell RJ. Incidental enterolithiasis. *Ulster Med J* 1989; **58**: 196-7.
7. Shocket E, Simon SA. Small bowel obstruction due to enterolith (Bezoar) formed in a duodenal diverticulum: a case report and review of the literature. *Am J Gastroenterol* 1982; **77**: 621-4.